the transistor 300 is similar to the embodiment of Figure 1 and primarily differs in the shape of the source 302, drain 304, and their corresponding extensions 306, 308. The source 302 and drain 304 are vertically aligned closer to the channel 22 than in the previous embodiment. As such, the extensions 306, 308 are shorter and extend primarily in a horizontal direction to couple with the channel 22. The shorter extensions 306, 308 reduce the resistance in the electron flow path.

[0063] As in previous embodiments, spacers 44, 46 are disposed between the channel 22 and the majority of the source 302 and drain 304. Accordingly, the channel 22 is partially shielded to reduce the field effect and provide superior gate control.

[0064] Referring to Figure 11, a cross-sectional view of an alternative embodiment of a transistor 400 of the present invention is shown. The transistor 400 is similar to that of Figure 10 with the primary difference being the shape of the channel 402. The channel 402 is in a U-shape similar to the embodiment of Figure 9. The increased channel length improves the gate control while increasing the resistance experienced in the flow path. A gate dielectric insulator 404 is disposed on the channel 402 and may have a planar configuration as shown or have a U shape.

[0065] Transistors 200, 300, 400 may also be referred to as a configurable transistor in that the alignment of the top gate and bottom gate determines the terminal connections, electrical behavior, and threshold voltage of the device. Thus, the transistors 200, 300, 400 may be embodied as a four terminal device, lateral bipolar transistor, or a DTMOS MOSFET as explained in reference to Figures 3 to 8.

PC 1/30/06 **[0066]** Referring to Figures 12 to 20 a method for manufacturing the transistor 10 of Figure 1 is shown. One of skill in the art will appreciate that various processes may